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Nonsuicidal Self-Injury as a Gateway to Suicide in Young Adults

Janis Whitlock, M.P.H., Ph.D. [a,b,*], Jennifer Muehlenkamp, Ph.D. [c], John Eckenrode, Ph.D. [a,b], Amanda Purington, M.P.S. [a], Gina Baral Abrams, M.P.H., M.S.W. [d], Paul Barreira, M.D. [e], and Victoria Kress, Ph.D. [f]

[a] *Bronfenbrenner Center for Translational Research, Cornell University, Ithaca, New York*
[b] *Department of Human Development, Cornell University, Ithaca, New York*
[c] *Department of Psychology, University of Wisconsin-Eau Claire, Eau Claire, Wisconsin*
[d] *Princeton University, Princeton, New Jersey*
[e] *Harvard University Health Services, Cambridge, Massachusetts*
[f] *Youngstown State University, Youngstown, Ohio*

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A B S T R A C T

Purpose: To investigate the extent to which nonsuicidal self-injury (NSSI) contributes to later suicide thoughts and behaviors (STB) independent of shared risk factors.
Methods: One thousand four hundred and sixty-six students at five U.S. colleges participated in a longitudinal study of the relationship between NSSI and suicide. NSSI, suicide history, and common risk/protective factors were assessed annually for three years. Analyses tested the hypotheses that the practice of NSSI prior to STB and suicide behavior (excluding ideation) reduced inhibition to later STB independent of shared risk factors. Analyses also examined factors that predicted subsequent STB among individuals with NSSI history.
Results: History of NSSI did significantly predict concurrent or later STB (AOR 2.8, 95%, CI 1.9–4.1) independent of covariates common to both. Among those with prior or concurrent NSSI, risk of STB is predicted by > 20 lifetime NSSI incidents (AOR 3.8, 95% CI, 1.4–10.3) and history of mental health treatment (AOR 2.2, 95% CI, 1.9–4.6). Risk of moving from NSSI to STB is decreased by presence of meaning in life (AOR .6, 95% CI, .5–.7) and reporting parents as confidants (AOR, .3, 95% CI, .1–.9).
Conclusions: NSSI prior to suicide behavior serves as a "gateway" behavior for suicide and may reduce inhibition through habituation to self-injury. Treatments focusing on enhancing perceived meaning in life and building positive relationships with others, particularly parents, may be particularly effective in reducing suicide risk among youth with a history of NSSI.

IMPLICATIONS AND CONTRIBUTION

This longitudinal study of the relationship between NSSI and suicide finds NSSI precedes or co-occurs with suicide in 61.6% of cases; NSSI heightens risk for later suicide independent of shared risk factors; and there are factors which predict risk of moving from NSSI to suicide in this population.

Nonsuicidal self-injury (NSSI) is defined as the "deliberate direct destruction or alteration of body tissue without a conscious suicidal intent." [1] NSSI and suicidal thoughts/behaviors (STB) in adolescents and young adult populations constitute areas of significant medical and psychiatric concern [2]. Of particular interest is the relationship between NSSI and STB since cross-sectional studies consistently show that NSSI and STB exist at high rates within inpatient and community samples of adolescents [3–6]. Within community populations, between 19% and 63% of individuals with NSSI history also report STB [3,4,7,8]. However, beyond documenting a strong association in cross-sectional studies, there remain significant questions related to the particularities of the relationship between NSSI and STB [9].

Given that the presence of NSSI may serve as an early or warning sign of STB, understanding the temporal relationship between them holds clear clinical relevance. In addition to

* Address correspondence to: Janis Whitlock, M.P.H., Ph.D., Bronfenbrenner Center for Translational Research, Cornell University, Ithaca, NY 14853.
E-mail address: jlw43@cornell.edu (J. Whitlock).

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understanding how often NSSI occurs before, concurrent with, or after STB, one of the primary questions of interest is the extent to which NSSI contributes to later development of STB independent of shared risk factors. Wichstrom [10] found NSSI did not predict later suicide attempt, though several risk and protective factors were found to be linked to both, suggesting that perhaps NSSI and STB are related but distinct phenomena. However, Wilkinson and colleagues [11] found that that 36% of all adolescent participants reported at least one act of NSSI in the month before baseline and that this was an optimal predictor of STB. Such findings raise questions about the relationship between NSSI and STB and suggest that, in some instances, the practice of NSSI may reduce inhibition to suicide action, as some have suggested [12].

What differentiates individuals with NSSI history who do and do not show concurrent or later suicidality is another question with important clinical implications. The strong relationship between NSSI and emotion dysregulation [13,14], low social support [3,10,11,15], and global psychological distress [15–17] suggest that these and related variables, such as cognitive style [18], sense of meaning in life [3,4], mental health history [16,19], and trauma history [15,20,21], may mediate the relationship between NSSI history and future STB. Furthermore, research suggesting that discussing and reflecting on emotional problems with peers may exacerbate mental distress for younger people [22,23] suggests that who one chooses to confide in about mental distress matters. Understanding what indicators predict concurrent or later STB among individuals with NSSI history may help clinicians identify individuals who are and are not at elevated risk for more lethal self-injury behaviors.

The current study documents the relationship of NSSI to suicide risk in a prospective design using a community sample of young adults. NSSI is hypothesized to be a risk factor for concurrent or later suicidal thoughts (ST) as well as suicide behaviors (i.e., excluding those with ideation only; SB) independent of demographic and psychosocial factors common to both. We also hypothesize that there will be a positive linear relationship between NSSI lifetime frequency and suicide variables. We hypothesize that individuals who do show later suicide behavior will score higher on indicators of trauma and distress and lower on indicators of emotional regulation, social support, meaning in life, and optimism than those who do not progress from NSSI to STB.

Methods

Sample

In 2007, 14,372 students from eight Northeast and Midwest public and private universities participated in a Web-based study entitled the *Survey of Student Wellbeing (SSWB)*. The sample was representative of the overall student population across all eight universities in terms of ethnicity, age, and socioeconomic status although more females than males participated (57.6% vs. 41.7%, 95% CI, 53.3–59.2; $Z = 14.96$, $p < .001$). Five of these universities agreed to allow participants the option of participating in a longitudinal study. Two of the five schools were private, two were public, and one was a mix of public and private. All but one are located in largely urban areas.

Of 5,214 eligible respondents, 2,320 (44.5%) indicated willingness to participate in longitudinal study. A total of 1,810 (78%) of these participated at Time 2 (spring 2008). Of the eligible 1,810, a total of 1,466 participated at Time 3 (spring 2009). This represents 63.2% of the original sample ($n = 2,320$) willing to participate in longitudinal study. The final sample did not differ from the original cross-sectional sample of students from the original eight-college study by sex, ethnicity/race, age, sexual orientation, or socioeconomic status, NSSI history, or STB history. At baseline the longitudinal sample ($n = 1,466$) had an average age of 20.3 ($SD = 4$); was 59.9% female; 75.5% heterosexual, 16.1% mostly heterosexual, 4.5% bisexual, 3.9% gay/lesbian; 69.3% Caucasian, 4.8% African-American, 3.8% Hispanic, 11.1% Asian, and 11% other; 72.2% had fathers who had completed college.

Study design and questionnaire

A *Survey of Student Wellbeing (SSWB)* was administered annually via a secure Internet server and required 15–30 minutes to complete. The *SSWB* was confidential and accessed privately by participants. The study was approved by all participating universities' Committee for Human Subjects. Links to local mental health resources were at the bottom of every page.

NSSI and suicide-related thoughts/behaviors. NSSI was assessed using the Non-Suicidal Self-Injury Assessment Tool (NSSI-AT), developed for a two-college study [17] and validated in repeat studies [24–26]. An initial screening question for NSSI, "Have you ever done any of the following *with the purpose of intentionally hurting yourself*?" is followed by a list of 19 NSSI behaviors (e.g., "cuts wrists, arms, legs, torso or other areas of the body" and "carves words or symbols into the skin"). Participants were then asked questions that assessed NSSI characteristics including but not limited to frequency, age of onset and cessation, and function. Lifetime frequency of NSSI (coded as 0, 1, 2–5, 6–20, > 20) was used in these analyses. Individuals who reported using self-injury exclusively as a means of practicing or attempting suicide were classified as not having practiced NSSI; this was determined by response to a follow-up question asking about intent of self-injury.

Reports of suicidal ideation, behaviors, and attempts were measured with a validated scale [27], adapted to a Web-based format by including an initial screening question, "Have you ever seriously considered or attempted suicide?" Individuals who answered positively were asked to identify specific behaviors engaged in (including ideation) and additional details. Retrospective information about age of onset for both NSSI and suicide-related thoughts/behaviors provided at baseline were used in addition to the longitudinal data to assess the temporal relationship between NSSI and STB.

Covariates. Covariates included demographic, psychosocial, history of mental illness, and formal and informal help-seeking variables. Demographic characteristics included gender, age, race/ethnicity, father's education level (used as a proxy for socioeconomic status), and sexual orientation. Psychosocial variables included three validated multi-item scales: life orientation (e.g., pessimism vs. optimism) [28], acceptance of emotion [29], sense of meaning in life [30], and perceived peer social isolation [31]. All of these were scored using a Likert-type response scale and showed acceptable Cronbach's alphas in the sample across each wave (.73–.92). Informal help-seeking was assessed by asking "Who do you feel comfortable getting help from when you feel anxious, sad, or depressed?" Respondents selected all that applied from a list of 23 categories that ranged from friends and parents to therapists and local providers. Both the cumulative number of categories identified and categorical